

# Chemistry

A department in the College of Natural Sciences and Mathematics offering the B.A., B.S., M.S. and Ph.D. in Chemistry

## ■ The Review Process

This was a standard AQAD review. Reviewers were:

Frank DiSalvo, chair (Cornell University)  
Peter Beak (University of Illinois Urbana-Champaign)  
Edward Marram (Babson College)  
Douglas Rees (California Institute of Technology)

## ■ Main Issues

The visiting team indicated that the department is currently ranked in the second quartile of chemistry research departments, and suggested that, “with careful planning by the department and the administration, the department could move into the first quartile.” The team found the department to be “very collaborative,” but also reported the “perception that the Administration could be more supportive of collaborative interactions.” The absence of joint appointments was highlighted in this regard. Overall, the team found that improvement of the department would require additional investments in faculty and facilities. The team observed that “if the strategy of the University is to play to your strengths, then the University should embrace the plan and find the resources to make it happen.”

The team made several specific comments:

- **Research directions.** The team found the department’s research priorities in renewable energy, nanomaterials and biomedicine to be “entirely appropriate,” and “in line with those at many other institutions.” While that alignment “inspires confidence in the choice of priorities, it does not set UMass apart from the crowd.” The team observed that there are “currently a few industry interactions,” but suggested that these could be increased following the successful model of the Polymer Science department. Because that model is staff-intensive, the team suggested considering a collaborative effort involving both departments.
- **Faculty growth.** The team observed that the department’s “faculty size is rather small when compared to peer institutions of the same size,” and indicated that “growth by at least another 5 faculty in the next few years is highly desirable.” Such growth would also allow a better balance between tenure system faculty and lecturers.
- **Facilities and start-up.** The team stressed, however, that growth will require major investment: “it should not come as a surprise to the administration that the amount and quality of research space is inadequate to the current program, let alone to an expanded program. Even with the current faculty numbers, it will be challenging if not impossible to increase grant support. ... Poor space will be the major impediment to recruiting new faculty in the near future.” It was reported that the department feels it is not consulted regarding major space and facilities issues. The team also warned that, while UMass has been effective in using spousal

opportunities and the “collaborative culture” within the department to “mitigate the need to match the top startup packages at other schools, ... the differential cannot become too large before problems attracting quality faculty will be apparent.”

- **Undergraduate program.** The team found the undergraduate majors to be a “happy lot,” but also observed that the number of majors “is low for a University of comparable size.” The team encouraged the department to go forward with plans to more aggressively recruit undergraduate majors.
- **Graduate program.** The team found the composition of graduate students to be “typical,” and endorsed the department’s efforts to keep time to degree at around five years. Students were reported to be “happy with the level of dedication of the faculty.” Graduate stipends, however, were found to be low, and the team reported that some graduate students “feel a pressure from advisors to stay in the lab, rather than attend seminars, especially when not directly connected to the group research. ... While students are expected to attend seminars in the first year, even that is not enforced – attendance at many seminars is rather low.” The team also expressed concern that the economic incentives to hire graduate research assistants vs. post-docs has eroded.

## ■ Student Outcomes Assessment

The Chemistry department reviews Senior Survey data and tracks undergraduate participation in networking events (e.g., their end of year departmental awards dinner) to measure students’ satisfaction with the major and integration in the department. In addition, the department participates in the Student Responses to Instruction (SRTI) program, which provides detailed feedback on courses and provides extensive comparative and contextual data for interpreting those results. These and other data have been used by the department to identify ways in which it can enhance both its undergraduate and graduate programs.

During AY2008-2009 all undergraduate programs will be engaged in a comprehensive review of the status of their student learning assessment plans, identifying both the assessment components already implemented and the targets for the coming year.

## ■ Response to the Review

The department expressed satisfaction with the team’s “complete agreement with our vision document. ... Simply put, we need to grow, and we need more and new space in which to grow.” The Dean also expressed agreement with the team’s findings, and noted that “the implementation will require new resources for faculty hiring and renovation of laboratories.”